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10/519,709

12/30/2004

Karsten Emrich

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EXAMINER

ROSATI, BRANDON MICHAEL

ART UNIT

PAPER NUMBER

4114

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/519,709 | Applicant(s) EMRICH ET AL. | |
| | Examiner Brandon M. Rosati | Art Unit 4114 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/30/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/30/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the term “preferably” in lines 2 and 9, renders the claim indefinite because it does not distinctly point out which collection vessel it is referring to.

Claims 2-14 are rejected for incorporating the above errors from their respective parent claims by dependency.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-8, 13 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Groves et al. (International Pub. No. WO 01/98723 A1).

Regarding claims 1 and 2, Groves et al. discloses as shown in Figure 10c, a first collecting vessel with a media connection (i.e. inlet) (233), and a second collecting vessel with a media connection (i.e. outlet) (234), which are connected to one another by heat exchanger

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element (i.e. tubes) (266) for a first medium. It is noted that 233 and 234, respectively, show a combined connector and collection vessel, which are referred to by the same reference number. In addition, they show the inlet and outlet for the first fluid media. Also, Groves discloses a housing (220), which allows a second medium to pass through the interior and has two media connections (i.e. flange) (226). It is noted that the flange is part of where the second media enters the housing. Furthermore, the housing (220) completely accommodates both collection vessels within its interior (as per claim 2) (Figures 10c, 11, and 12 and pages 16-17).

Regarding claim 3, Groves et al. discloses a first second media connection (226), with a first collecting vessel (233) located in between the first second media connection (226) and the heat exchanger element (266). Furthermore, Groves et al. discloses the other second media connection (226), with a collection vessel (234) located in between the other second media connection (226) and the heat exchanger element (266) (Figures 10c and 11).

Regarding claim 4, Groves et al. discloses a first medium entering collection vessel (233) (portion within the housing), flowing in a transverse direction, particularly at a right angle through heat exchanger element (266) and exiting through collection vessel (234) (portion within the housing) (Figure 10c).

Regarding claim 5, Groves et al. discloses second media connections (226) pointing in the same direction as the flow, which is passing through heat exchanger elements (266) (Figure 10c).

Regarding claim 6, Groves et al. discloses first media connections (portions outside of the housing of 233 and 234) that point in a transverse direction, in particular at a right angle with respect to the flow of the first medium through the heat exchanger element (266) (Figure 10c).

Regarding claims 7 and 8, Groves et al. discloses first media connections (portions outside of the housing of 233 and 234) that point and are aligned in the direction of the longitudinal extent of the collection vessels (portion within the housing of 233 and 234) (Figure 10c).

Regarding claim 13, Groves et al. discloses all the structural features (see claim 1 above), which would allow for the heat exchanger to function as a counter flow heat exchanger. It is noted that the second media can enter or exit the heat exchanger through either of the connections (226). If the first media enters via collection vessel (234) and exits through collection vessel (233), the second media traveling through the heat exchanger from connection (226) closest to the vessel (233) and exiting the connection (226) near the vessel (234) the heat exchanger would function as a counter flow heat exchanger (Figure 11).

Regarding claim 14, Groves et al. discloses all the structural features (see claim 1 above), which would allow for the heat exchanger to function as a counter flow heat exchanger. It is noted that the second media can enter or exit the heat exchanger through either of the connections (226). If the first media enters via collection vessel (234) and exits through collection vessel (233), the second media traveling through the heat exchanger from connection (226) closest to the vessel (234) and exiting the connection (226) near the vessel (233) the heat exchanger would function as a co-current heat exchanger (Figure 11).

Claim Rejections - 35 USC § 103

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

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claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Groves et al. (International Pub. WO 01/98723 A1) in view of Santala et al. (U.S. Patent No. 3,953,176).

Regarding claim 9 it is noted that the teachings of Groves et al. discloses all the claimed limitations except the housing being in the approximate shape of a bone. However, Santala et al. discloses a housing in the approximate shape of a bone (Figure 7). Hence, it would have been

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obvious at the time the invention was made to a person having ordinary skill in the art to modify the teachings of Groves et al. with the housing in the shape of a bone of Santala et al. The motivation to combine is that the shape of the housing would allow for better fluid flow within the housing and thus increase heat transfer.

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Groves et al. (International Pub. WO 01/98723 A1) in view of Hayashi et al. (U.S. Pub No. 2003/0010479).

Regarding claim 10 it is noted that the teachings of Groves et al. discloses all the claimed limitations except having the walls of housing bearing snugly against the heat exchanger element. However, Hayashi et al. discloses walls of housing bearing snugly against the heat exchanger element (11) (Figure 1A). Hence, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the teachings of Groves et al. with the bearing snugly against the heat exchanger element of Hayashi et al. The motivation to combine is that having the heat exchanger element bear snugly against the wall would allow for increased efficiency within the heat exchanger.

9. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Groves et al. (International Pub. WO 01/98723 A1) in view of Kale (U.S. Patent No. 6,659,170 B1).

Regarding claim 11 it is noted that the teachings of Groves et al. discloses all the claimed limitations except a section of the housing forming a housing section for a fan. However, Kale discloses a housing for a fan (26) within the main housing (11) (Figure 1 and column 5, lines 35-45). Hence, it would have been obvious at the time the invention was made to a person having

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ordinary skill in the art to modify the teachings of Groves et al. with additional housing for the fan of Kale. The motivation to combine is that the fan would increase the efficiency of the heat exchanger.

10. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Groves et al. (International Pub. WO 01/98723 A1) in view of Kale (U.S. Patent No. 6,659,170 B1) and further in view of Guatelli et al. (French Pub. No. 2605685).

Regarding claim 12 it is noted that the combined teachings of Groves et al. and Kale discloses all the claimed limitations except the fan housing embodied as a helical housing. However, Guatelli et al. discloses a housing for a helical fan. (Figure 1). Hence, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the teachings of Groves et al. and Kale with the helical fan housing of Guatelli et al. The motivation to combine is that the helical shape of the housing would increase the fan efficiency.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Oota (Japanese Patent No. 360165493 A) discusses a heat exchanger with a fan.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandon M. Rosati whose telephone number is (571) 270-3536. The examiner can normally be reached on Monday-Friday 8:00am- 4:30pm EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joe Cheng can be reached on (571)-272-4433. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BMR
10/29/07

/Joe H Cheng/
Supervisory Patent Examiner, Art Unit 4114